

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Currently Amended) An automatic stop/start controller for a vehicle having an engine, a motor generator to drive the engine, an automatic transmission which includes frictional drive engaging elements, and an oil pressure pump which generates oil pressure to engage and disengage said frictional drive engaging elements, said automatic stop/start controller permitting the engine to stop and start without operation of an ignition key, wherein, at start of the engine without operation of the ignition key and after said engine is started to drive by said motor generator of which the amount of torque is variably set based on a determination as to whether the throttle opening angle is at an idle opening angle, the controller corrects to increase the torque generated by said motor generator according to the degree of engagement of said frictional drive engaging elements of said automatic transmission, and starts the fuel supply to the engine when the degree of engagement of the frictional drive engaging elements exceeds a predetermined threshold, the frictional engaging elements being driven by said oil pressure generated by the oil pressure pump, wherein the oil pressure pump comprises a mechanical pump that is driven by a driving force of the engine.

2. (Original) The automatic stop/start controller for the engine as defined in Claim 1, wherein said controller corrects and increases the torque generated by said motor generator according to opening degree of a throttle valve of said engine.

3. (Original) The automatic stop/start controller for the engine as defined in Claim 2, wherein said controller determines the degree of engagement of said frictional engaging elements of said automatic transmission by comparison between the engine speed of said engine and the turbine rotational speed of a torque converter of said automatic transmission.

4. (Canceled)

5. (Original) The automatic stop/start controller for the engine as defined in Claim 2, wherein said motor generator performs functions of assisting said engine and of power generating at least during running of said vehicle.

6. (Original) The automatic stop/start controller for the engine as defined in Claim 1, wherein said controller determines the degree of engagement of said frictional engaging elements of said automatic transmission by comparison between the engine speed of said engine and the turbine rotational speed of a torque converter of said automatic transmission.

7. (Original) The automatic stop/start controller for the engine as defined in Claim 1, wherein said motor generator performs functions of assisting said engine and of power generating at least during running of said vehicle.

8. (Currently Amended) A hybrid vehicle, comprising:
an internal combustion engine;
an electric motor-generator drivingly connected to the engine to assist in driving of said engine when functioning as a motor;
an automatic change-speed transmission drivingly connecting said engine and said motor to said vehicle wheels,

said transmission having a rotational turbine associated therewith and also having frictional engaging drive elements; an oil pressure pump that is a mechanical pump mechanically driven by a driving force of the engine, said oil pressure pump generating oil pressure to engage and disengage said frictional drive engaging elements; and an automatic stop/start controller for permitting starting and stopping of the engine without operation of an ignition key;

the amount of torque generated by said motor being variably set based on a determination as to whether the throttle opening angle is at an idle opening angle, said controller increasing the torque generated by said motor for supply to said transmission according to the degree of engagement of the frictional engaging drive elements of said automatic transmission, and starts the fuel supply to the engine when the degree of engagement of the frictional engaging drive elements exceeds a predetermined threshold.

9. (Previously Presented) A vehicle according to Claim 8, wherein the controller determines the degree of engagement of said frictional engaging elements of said automatic transmission by comparison between the engine speed of said engine and the turbine rotational speed of a torque converter of said automatic transmission.

10. (Previously Presented) A vehicle according to Claim 8, wherein the controller corrects and increases the torque generated by said motor generator according to opening degree of a throttle valve of said engine.

11. (Previously Presented) A process for controlling the startup of an internal combustion engine having a motor generator coupled thereto for assisting in driving said engine, and an automatic transmission drivingly coupled to the output of said engine and said motor, the transmission having

a rotatable turbine wheel and having frictional drive engaging elements, and a controller for controlling said motor to permit starting and stopping of said engine without use of an ignition key, comprising the steps of:

energizing the motor to effect starting of said engine without use of an ignition key;

determining if the engine speed exceeds the transmission turbine speed by a predetermined reference amount;

when the engine speed exceeds the turbine speed by less than said predetermined differential, preventing the supply of fuel to the engine;

then determining a motor torque value according to engine speed with reference to a motor torque table;

then increasing the motor torque value according to either the idle or non-idle opening degree of the engine throttle; and

then increasing the torque output of the motor in accordance with the increased motor torque value.

12. (New) An automatic stop/start controller for a vehicle comprising an engine having a throttle which operates based on a throttle opening angle, a motor generator to drive the engine, an automatic transmission which includes frictional drive engaging elements which are engagable and disengagable to transmit torque from the engine and the motor generator to wheels of the vehicle, and an oil pressure pump which is a mechanical pump that is driven by a driving force of the engine to generate oil pressure, the frictional engaging elements being driven by said oil pressure generated by the oil pressure pump which said oil pressure serves to thereby engage and disengage said frictional drive engaging elements, the degree of engagement of the frictional engaging elements being variable depending upon variations in said oil pressure during starting and stopping of said engine, said automatic stop/start controller permitting the engine to stop and start without operation of an ignition key, wherein, at

start of the engine without operation of the ignition key and after said engine is started to drive by said motor generator, the amount of torque is variably set by the controller based on a determination as to whether the throttle opening angle is at an idle opening angle, and wherein the controller corrects to increase the torque generated by said motor generator according to the degree of engagement of said frictional drive engaging elements of said automatic transmission which progressively reengage as the engine is started, and the controller starts the fuel supply to the engine when the degree of engagement of the frictional drive engaging elements exceeds a predetermined threshold.